BRUHAT BENGALURU MAHANAGARA PALIKE

No.EE/ELE/SOUTH/TEND/03/2024-25

Office of the Executive Engineer (Ele),
South Zone, Jaynagar 2nd Block,
Bruhat Bengaluru Mahanagara Palike.
Dated: 07/11/2024

ADDENDUM

Ref: 1. Tender notification No: **EE/ELE/SOUTH/TEND/03/2024-25, Dt: 23/09/2024.**

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1.With reference to this office tender notification cited above, the following modifications/alterations in some clauses of Draft concessionaire agreement (DCA) and RFP are required. Hence, the below mentioned clauses of DCA and RFP shall be read as in the modified clauses. All other conditions remain unchanged.

Sl. No.	Existing Clause	Modified Clause
	RFP	
01	**1.1.4. Brief particulars of the Project are detailed below:** • Newly Procured LED Lights	**1.1.4. Brief particulars of the Project are detailed below:** • Newly Procured LED Lights to be read and considered as Existing LED Lights
02	**2.15. Financial Bid** 2.15.2. Bid, consisting of the Bidders financial offer for the Project in prescribed format as per Appendix V of this document. The Authority will open/unlock the Bids uploaded through KPP Platform as specified above, including modifications made pursuant to clause 1.3 online on the date notified in the KPP Portal in the presence of Bidders or their authorized representatives, who choose to be present at the stipulated place as notified in the KPP Portal. In the event of the specified date of opening being declared a holiday for the Authority, the Bids will be opened at the appointed time and location on the next working day. The Bidders can also view the contents after the opening of the Bids. The Bidder's representatives who are present shall produce authorization letter and shall sign evidencing their attendance.	**2.15. Financial Bid** 2.15.2. Bid, consisting of the Bidders financial offer for the Project in prescribed format as per Appendix XV of this document. The Authority will open/unlock the Bids uploaded through KPP Platform as specified above, including modifications made pursuant to clause 1.3 online on the date notified in the KPP Portal in the presence of Bidders or their authorized representatives, who choose to be present at the stipulated place as notified in the KPP Portal. In the event of the specified date of opening being declared a holiday for the Authority, the Bids will be opened at the appointed time and location on the next working day. The Bidders can also view the contents after the opening of the Bids. The Bidder's representatives who are present shall produce authorization letter and shall sign evidencing their attendance.

03	**APPENDIX-V: FORMAT FOR CERTIFICATE FROM STATUTORY AUDITOR FOR FINANCIAL CRITERIA OF THE BIDDER** We have verified the relevant statutory and other records of M/s____[Name of Sole bidder/Consortium Member], and certify that the net worth is Rs (Rupees Crores) as on March 31, 2023.	**APPENDIX-V: FORMAT FOR CERTIFICATE FROM STATUTORY AUDITOR FOR FINANCIAL CRITERIA OF THE BIDDER** We have verified the relevant statutory and other records of M/s_____[Name of Sole bidder/Consortium Member], and certify that the net worth is Rs (Rupees Crores) as on March 31, 2024
04	**APPENDIX - XVII SCOPE OF WORK** **b. Operation &Maintenance (O&M) staff:** • Zone shall have 10 teams comprising of 1 electrician, 1 driver and 1 helper accompanied with ladder mounted jeep (to reach at least 10 mtr height) for addressing each 10,000 block of light for streetlight complaints	**APPENDIX - XVII SCOPE OF WORK** **b. Operation &Maintenance (O&M) staff:** • Zone shall have 20 teams comprising of 1 electrician, 1 driver and 1 helper accompanied with ladder mounted jeep (to reach at least 11 mtr height) for addressing each 5,000 block of light for streetlight complaints.
05	**c. Operation and Maintenance Vehicles: Ladder mounted jeep:** • Each jeep must have essentially clamp meter, earthing rod, insulation tapes, and additional wooden ladder (minimum 10 mtr.).	**c. Operation and Maintenance Vehicles: Ladder mounted jeep:** • Each jeep must have essentially clamp meter, earthing rod, insulation tapes, and additional wooden ladder (minimum 11 mtr.).
06	**B. Baseline Assessment:** Please Note the following: 1. Proposed LED wattages are only indicative in nature. Concessionaire may opt for any other wattages provided the lux levels are according to Authority Requirement and National lighting code (IS- 1994, parts- I & II, 1970; clauses 5.1 to 5.7)	**B. Baseline Assessment:** Please Note the following: 1. Proposed LED wattages are only indicative in nature. Concessionaire may opt for any other wattages provided the BBMP required Lux levels for different road categories as specified in schedule-3 are met and also the luminaires installed in different road categories meet the minimum total Lumen output as specified in serial No. -12 of Minimum technical specifications of LED street lights in Schedule-3 of DCA

Sl. No	Existing Clause	Modified Clause
	DCA	
01	**2. Conditions Precedent** 2.1.1. Clauses and any related Annexes /Schedules shall come into force and effect on the Execution Date and other Clauses and any related Annexes shall come into force and effect on the Effective Date.	**2. Conditions Precedent** 2.1.1. Clauses 1 (Definitions and Interpretations), 2 (Conditions Precedent), 3 (Scope of the Project, Grant of Exclusive Right and Term), 6 (Independent Chartered Engineer), 11 (Performance Security), 14 (Change in Ownership), 15 (Change in Law), 16 (Indemnity and Insurance), 17 (Force Majeure), 21 (Dispute Resolution), 22

		(Representations and Warranties) and 24(Miscellaneous Provisions) and any related Schedules and Annexures shall come into force and effect on the Execution Date and continue until such time as this Agreement expires or is terminated in accordance with its terms. The other provisions of this Agreement and related Schedules shall come into full force and effect and be binding on the Parties on and from the Effective Date and continue until such time as this Agreement expires or is terminated in accordance with its terms.
02	**2.2.2. Concessionaire and Authority's Conditions Precedent:** iii. The Concessionaire and Authority shall conduct live demonstration with proposed LED streetlights (6-8 LED Luminaires of each type of Luminaire) with proposed CCMS panel as per the technical specifications in the schedule-3 which are to be installed during Project execution. This demonstration shall be conducted in the presence of BCC, BESCOM officials and Independent Chartered Engineer (ICE). The Concessionaire will not be paid any charges for live demonstration. The demonstration shall be conducted on different category of roads in the limits of BRUHAT BENGALURU MAHANAGARA PALIKE. Demonstration will be done for each type of proposed LED Street light which are to be installed during the Project. During demonstration the following parameters are to be determined.	**2.2.2. Concessionaire and Authority's Conditions Precedent:** iii. The Concessionaire and Authority shall conduct live demonstration with proposed LED streetlights (6-8 LED Luminaires of each type of Luminaire) with proposed CCMS panel as per the technical specifications in the schedule-3 which are to be installed during Project execution. This demonstration shall be conducted in the presence of BBMP, BESCOM officials and Independent Chartered Engineer (ICE). The Concessionaire will not be paid any charges for live demonstration. The demonstration shall be conducted on different category of roads in the limits of BRUHAT BENGALURU MAHANAGARA PALIKE. Demonstration will be done for each type of proposed LED Street light which are to be installed during the Project. During demonstration the following parameters are to be determined.
03	**2.2.3. Authority's Conditions Precedent:** vii. Upon receipt of the Performance Security from the Concessionaire the TIA shall release the Bid Security (EMD) within 15 days of receipt of Performance Security.	**2.2.3. Authority's Conditions Precedent:** vii. Upon receipt of the Performance Security from the Concessionaire the TIA shall release the Bid Security (EMD) within 30 days of receipt of Performance Security.
04	**3.1. Scope of Work** 3.1.1. The Concessionaire shall be solely and exclusively responsible for Implementation of Energy Efficiency Project for street lighting system by replacement of existing conventional streetlights with energy efficient LED streetlights and installing Centralized control & Monitoring system. This will include integration of new LED and existing LED streetlights with CCMS system within an implementation period of 8 months (	**3.1. Scope of Work** 3.1.1. The Concessionaire shall be solely and exclusively responsible for Implementation of Energy Efficiency Project for street lighting system by replacement of existing conventional streetlights with energy efficient LED streetlights and installing Centralized control & Monitoring system. This will include integration of new LED and existing LED streetlights with CCMS system within an implementation period of 8 months (

	extendable by additional 2 Months with Liquidated Damages) along with Operation and Maintenance for a period of 7 years after the project Commercial Operation Date (including original or extended implementation period) through PPP for undertaking the following:	extendable by additional 2 Months with Liquidated Damages) along with Operation and Maintenance for a period of 7 years after the project Commercial Operation Date (excluding original or extended implementation period) through PPP for undertaking the following:
05	**3.2. Undertake comprehensive operation and maintenance of street lighting network for Contract Period (7 years):** xv. The Concessionaire shall maintain a call center to attend complaints received by phone, Sahaya/Janahitha-MRC, email, SMS, etc.	**3.2. Undertake comprehensive operation and maintenance of street lighting network for Contract Period (7 years):** xv. The Concessionaire shall maintain a call center to attend complaints received by phone, Sahaaya/IPGRS, email, SMS, etc.
06	**3.2. Undertake comprehensive operation and maintenance of street lighting network for Contract Period (7 years):** xxv. The Concessionaire shall ensure the availability of at least 10 numbers of ladder mounted jeep/ hydraulic vehicle/ any relevant vehicle (suitable to reach up to 10m height) along the required equipment for every zone/ package formed as per Corporation for O&M purpose. The vehicles used for O&M should have valid registration documents.	**3.2. Undertake comprehensive operation and maintenance of street lighting network for Contract Period (7 years):** xxv. The Concessionaire shall ensure the availability of at least 20 numbers of ladder mounted jeep/ hydraulic vehicle/ any relevant vehicle (suitable to reach up to 11m height) along the required equipment for every zone/ package formed as per Corporation for O&M purpose. The vehicles used for O&M should have valid registration documents.
07	**3.8. Grievance Redressal:** iii.(c) In addition to the telephone call, the Concessionaire shall refer complaints through Janahitha (MRC);	**3.8. Grievance Redressal:** iii.(c) In addition to the telephone call, the Concessionaire shall refer complaints through Sahaaya/IPGRS;
08	**b. Operation & Maintenance (O&M) staff:** 2. Electrician(s)/ Electrical wiremen – 10 No's 3. Driver(s) - 10 No's 4. Assistant/Helper - 10 No's • Every zone shall have 10 teams for addressing street light complaints. Each team must essentially have 1 electrician, 1 driver and a helper accompanied with ladder mounted jeep (to reach at least 10 mtr height).	**b. Operation & Maintenance (O&M) staff:** 2. Electrician(s)/ Electrical wiremen – 20 No's 3. Driver(s) – 20 No's 4. Assistant/Helper - 20 No's • Every zone shall have 20 teams for addressing street light complaints. Each team must essentially have 1 electrician, 1 driver and 1 helper accompanied with ladder mounted jeep (to reach at least 11 mtr height).
09	**c. Operation & Maintenance Vehicles:** Ladder mounted Jeep (10" Nos): • Concessionaire should compulsorily provide 10 (atleast 1 ladder jeep for a block of 10,000 lights) ladder mounted jeeps for attending street lights irrespective of number of complaints.	**c. Operation & Maintenance Vehicles:** Ladder mounted Jeep (20' Nos): • Concessionaire should compulsorily provide 20 (atleast 1 ladder jeep for a block of 5,000 lights) ladder mounted jeeps for attending street lights irrespective of number of complaints. • The ladder vehicle deployed for maintenance should be fitted with GPS equipment.

10	**9.2. Obligations of the Authority** 9.2.1. (e). Subject to clause 3.1.1(b), during the Term, the Authority shall not permit any third party to install LED lights/equipment or provide O&M Services in relation to the Project.	**9.2. Obligations of the Authority** 9.2.1. (e). During the Term, the Authority shall not permit any third party to install LED lights/equipment or provide O&M Services in relation to the Project.
11	**SCHEDULE–3 TECHNICAL SPECIFICATIONS** 1.Replacing LED luminaires against each existing luminaire rating is given in the table below: A.4. South Zone Procured LED Street Lights.	**SCHEDULE–3 TECHNICAL SPECIFICATIONS** 1.Replacing LED luminaires against each existing luminaire rating is given in the table below: A.4. South Zone Procured LED Street Lights to be read and considered as Existing LED Street Lights.
12	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** a. Requirement 1. Replacing LED luminaires against each existing luminaire rating is given in the table below;	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** a. Requirement 1. Replacing LED luminaires against each existing luminaire rating is given in the table below; Consider the table in the Annexure-I as attached along with this addendum.
13	4. MISCELLANEOUS 4.9.	4. MISCELLANEOUS 4.9. Deleted
14	**CCMS Specification** mentioned in Schedule 3 (Page no. 94) The central CCMS unit is capable of handling minimum 2500 number switching point units.	**CCMS Specification** mentioned in Schedule 3 (Page no. 94) The central CCMS unit is capable of handling minimum 6500 number switching point units.
15	**3.1. Scope of Work** **B. Replacement and Installation – Implementation:** vi. Apart from the 68,374 lights and 6,146 switch points as specified above (Including empty pole lights), there already exist 65,814 LED lights with the Authority. It is the responsibility of the Concessionaire to replace these existing LED street lights and connect with the centralized control & monitoring system to control and monitor these 65,814 streetlights (along with 68,374 streetlights). The responsibility of operation and maintenance of these 65,814 LED street lights along with replaced 68,374 LED streetlights also lies with Concessionaire and key performance indicators shall be applicable.	**3.1. Scope of Work** **B. Replacement and Installation – Implementation:** vi. Apart from the 68,374 conventional lights and 6,146 switch points as specified above (Including empty pole lights), there already exists 65,814 LED lights with the Authority. If there is a drop in the required Lux Levels the Concessionaire must replace existing LED street lights, subjected to maintaining the required Lux levels for a particular road category during the project term, and connect with the centralized control & monitoring system. It is the responsibility of the Concessionaire to replace the existing conventional street lights to LED and connect with the centralized control & monitoring system to control and monitor these 65,814 LED streetlights (along with 68,374 conventional streetlights). The responsibility of

		operation and maintenance of these 65,814 LED street lights also lies with Concessionaire and key performance indicators shall be applicable.
16	**3.4. Ownership** ii. Apart from the 68,374 lights and 6,146 switch points as specified above (Including empty pole lights), there already exist 65,814 LED lights with the Authority. It is the responsibility of the Concessionaire to replace these existing LED street lights and connect with the centralized control & monitoring system to control and monitor these 65,814 streetlights (along with 68,374 streetlights). The responsibility of operation and maintenance of these 65,814 LED street lights also lies with Concessionaire and key performance indicators shall be applicable.	**3.4. Ownership** ii. Apart from the 68,374 conventional lights and 6,146 switch points as specified above (Including empty pole lights), there already exists 65,814 LED lights with the Authority. It is the responsibility of the Concessionaire to replace/connect these switch points/ feeder panels with the new centralized control & monitoring system to control and monitor these 65,814 LED streetlights (along with 68,374 conventional streetlights). The responsibility of operation and maintenance of these 65,814 LED street lights also lies with Concessionaire and key performance indicators shall be applicable.

2. In response to the Pre-Bid meeting queries the following clauses of RFP and DCA are modified/ changed as below.

Sl. No	Existing Clause	Modified Clause
	RFP	
01	**3.3. Evaluation of Eligibility Criteria and Technical Bid** **a. Technical Criteria** **2. Installation and operation & maintenance of streetlights within a single Project/ work** Bidder should have satisfactorily completed one similar project /work of "Installation and operation and maintenance of street lights within a single work/project with at least 67,094 No's (Sixty-Seven Thousand Ninety-Four) with CCMS installed between 01-04-2019 and the last date of bidding for any Corporation or ULB, or with any Government/Semi government /PSU1	**3.3. Evaluation of Eligibility Criteria and Technical Bid** **a. Technical Criteria** **2. Installation and operation of streetlights in similar Projects/ works.** Bidder should have satisfactorily completed similar projects /works of "Installation and operation of street lights with at least 34,187 No's (Thirty Four thousand One Hundred and Eighty Seven) with CCMS installed between 2019 and the last date of bidding for any Corporation or ULB, or with any Government/Semi government /PSU.
02	**3.3. Evaluation of Eligibility Criteria and Technical Bid** **b. Financial Criteria** **2. Networth** Sole Bidder/ Lead member of Consortium should have a networth of INR 39,54,50,000/-	**3.3. Evaluation of Eligibility Criteria and Technical Bid** **b. Financial Criteria** **2. Networth** Sole Bidder/ Lead member of Consortium should have a networth of INR 19,04,91,780/-

<table>
<tr><td></td><td>(Thirty Nine Crore Fifty Four Lakh Fifty Thousand Only) at the close of the preceding financial year.</td><td>(Nineteen Crore Four Lakh Ninety One Thousand Seven Hundred and Eighty Only) at the close of the preceding financial year.</td></tr>
<tr><td>03</td><td>
APPENDIX - XVII SCOPE OF WORK
2. Undertake comprehensive operation and maintenance of street lighting network for contract period (7 years):
xiv. During maintenance period, in case any street light is not functioning or defective, the Concessionaire will replace or repair the same within 24 hours of receiving the complaint, except for the reasons beyond the control of the Concessionaire which shall be brought to the notice of Engineer-in-charge. In case the issue is not resolved within 24 hours then a penalty equivalent to Ten (10) times of the monetized value of energy consumption by streetlight for non-burning duration beyond 24 hours shall be levied.

XXV. All complaints lodged in system have to be resolved within 24 hours of lodging of complaint. For example, if the complaint is lodged on 16thMay at 10 PM then the complaint has to be resolved before 17thMay 10 PM. In certain cases, Concessionaire has to resolve the complaints immediately as per the instruction of Engineer In-Charge.

D. Key Performance indicators,Table-4, (in both RFP & DCA)
<table>
<tr><th>KPI</th><th>Prescribed Levels</th><th>Penalty Details</th></tr>
<tr><td>Rectification of defective /partially glowing / flickering /streetlight</td><td>Less than 24 Hrs of registration/ appeared in CCMS software time</td><td>Concessionaire shall address complaints within 24 hrs. of registration / appeared in CCMS software. If Concessionaire fails to address the complaint, he will be penalized with 10 X monetized value of energy consumption of particular street for non-burning hours beyond 24 hours.</td></tr>
</table>
</td><td>
APPENDIX - XVII SCOPE OF WORK
2. Undertake comprehensive operation and maintenance of street lighting network for contract period (7 years):
During maintenance period, in case any street light is not functioning or defective, the Concessionaire will replace or repair the same within 48 hours of receiving the complaint, except for the reasons beyond the control of the Concessionaire which shall be brought to the notice of Engineer-in-charge. In case the issue is not resolved within 48 hours then a penalty equivalent to Ten (10) times of the monetized value of energy consumption by streetlight for non-burning duration beyond 48 hours shall be levied.

XXV. All complaints lodged in system have to be resolved within 48 hours of lodging of complaint. For example, if the complaint is lodged on 16thMay at 10 PM then the complaint has to be resolved before 18thMay 10 PM. In certain cases, Concessionaire has to resolve the complaints immediately as per the instruction of Engineer In-Charge.

D. Key Performance indicators,Table-4, (in both RFP & DCA)
<table>
<tr><th>KPI</th><th>Prescribed Levels</th><th>Penalty Details</th></tr>
<tr><td>Rectification of defective /partially glowing / flickering /streetlight</td><td>Less than 48 Hrs of registration/ appeared in CCMS software time</td><td>Concessionaire shall address complaints within 48 hrs. of registration / appeared in CCMS software. If Concessionaire fails to address the complaint, he will be penalized with 10 X monetized value of energy consumption of particular street for non-burning hours beyond 48 hours.</td></tr>
</table>
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04	**APPENDIX - XVII SCOPE OF WORK** **12 PERFORMANCE PARAMETERS** **D. Key Performance Indicators** Uptime of the installations should be 99% at any given point of time. (Conversely downtime of installations should be maximum 1%) • Failure to maintain uptime of minimum 99% of all LED lamps in the project area will attract a fine of 0.1 % of EMI payable for the month, for each such day/days witnessed/documented in CCMS.	**APPENDIX - XVII SCOPE OF WORK** **12 PERFORMANCE PARAMETERS** **D. Key Performance Indicators** Uptime of the installations should be 98% at any given point of time. (Conversely Downtime of installations should be maximum 2%). • Failure to maintain uptime of minimum 98% of all LED lamps in the project area will attract a fine of 0.1 % of EMI payable for the month, for each such day/days witnessed/documented in CCMS.
	DCA	
01	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** **2. Technical specification of LED streetlight, flood lights fixtures:** 16. LEDs shall be operated at a forward current < 70% of rated maximum forward current, in the range of 350 mA to 1000 mA	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** **2. Technical specification of LED streetlight, flood lights fixtures:** 16. LEDs shall be operated at a forward current < 70% of rated maximum forward current, in the range of 350 mA to 1000 mA **or** The operating power of LED <70% of the maximum rated power.
02	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** **2. Technical specification of LED streetlight, flood lights fixtures:** **Average rated life span of LEDs used in the luminaries:** More than 50,000 hrs., case temperature of 105°C with respect to lumen maintenance of 70%.	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** **2. Technical specification of LED streetlight, flood lights fixtures:** **Average rated life span of LEDs used in the luminaries and their depreciation:** More than 50,000 hrs., case temperature of 105°C with respect to lumen maintenance of 70%. The lumen depreciation of streetlight should not be more than 3% per year and should not be more than 21% in 7 years from the Lumen recorded in the LM79 test certificate.
03	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** **2. Technical specification of LED streetlight, flood lights fixtures:** **17.Surge suppresser:** Internal voltage surge protection: Universal electronic driver with internal surge protection of 6KV (Applicability IS 15885, driver safety 16104-1/2) External voltage surge protection: External surge protection device (SPD) with a minimum immunity level of 20KV / 10 kA (Uoc/Isc)	**SCHEDULE – 3 TECHNICAL SPECIFICATIONS** **2. Technical specification of LED streetlight, flood lights fixtures:** **17.Surge suppresser:** Internal voltage surge protection: Universal electronic driver with internal surge protection of 4KV (Applicability IS 15885, driver safety 16104-1/2) External voltage surge protection: External surge protection device (SPD) with a minimum immunity level of 20KV / 10 kA (Uoc/Isc)

	shall be separately installed with each fixture in line with IEC 61643-11 as amended up to date.	shall be separately installed with each fixture in line with IEC 61643-11 as amended up to date.

Executive Engineer (Ele),
South Zone,
Bruhat Bengaluru Mahanagara Palike.

Copies to:

1. Chief Commissioner, BBMP for kind information.
2. Special Commissioner (Project), BBMP for kind information.
3. Engineer-In-Chief, BBMP for kind information.
4. Zonal Commissioner (South Zone) for kind information.
5. Joint Commissioner (South Zone) for kind information.
6. CE (South Zone) for kind information.
7. Superintending Engineer (Ele) for kind information.
8. Office copy.

ANNEXURE - I

SCHEDULE – 3 TECHNICAL SPECIFICATIONS

a. Requirement

1. Replacing LED luminaires against each existing luminaire rating is given in the table below;

SL. No	Lamp Type	Quantity (no's)	% of Grand Total	Proposed LED Street Lights Wattage Replacement
A.1	South Zone Existing Conventional Lights			
A-1	HPSV 250W	152	0.11%	120
A-1	FTL 40W	1	0.00%	120
A-1	FL 250W	2	0.00%	120
A-2	HPSV 250W	3054	2.28%	90
A-2	FTL 40W	33	0.02%	90
A-2	MV 125W	4	0.00%	90
A-2	HPSV 70W	52	0.04%	90
A-2	FL 250W	0	0.00%	120
B-1	HPSV 250W	1768	1.32%	65-70
B-1	FTL 40W	12	0.01%	65-70
B-1	MV 125W	41	0.03%	65-70
B-1	HPSV 70W	10	0.01%	65-70
B-1	FL 250W	0	0.00%	120
B-2	HPSV 250W	26781	19.96%	40
B-2	FTL 40W	110	0.08%	40
B-2	MV 125W	135	0.10%	40
B-2	HPSV 70W	93	0.07%	40
B-2	FL 250W	0	0.00%	120
Parks	HPSV 250W	292	0.22%	40
Parks	FTL 40W	83	0.06%	40
Parks	MV 125W	3064	2.28%	40
Parks	HPSV 70W	22	0.02%	40
Parks	FL 250W	0	0.00%	120
Parks	FL MH 400W	45	0.03%	200
HM	FL 250W	0	0.00%	120
HM	FL MH 400W	634	0.47%	200
HM	FL 400W	1	0.00%	200

MM	HPSV 250W	0	0.00%	120
MM	FL 250W	0	0.00%	120
MM	FL MH 400W	110	0.08%	200
Total - A.1		**36499**	**27.20%**	

SL. No	Lamp Type	Quantity (no's)	% of Grand Total	Proposed LED Street Lights Wattage Replacement
A.2	**Bommanahalli Partial Zone Existing Conventional Lights**			
A-1	HPSV 250W	253	0.19%	120W
A-2	HPSV 250W	4186	3.12%	90W
A-2	FTL 40W	178	0.13%	90W
A-2	CFL 9W (Bulb)	17	0.01%	90W
A-2	HPSV 70W	3	0.00%	90W
B-1	HPSV 250W	738	0.55%	65-70W
B-1	FTL 40W	20	0.01%	65-70W
B-1	CFL Bulb	10	0.01%	65-70W
B-2	HPSV 250W	11267	8.40%	40W
B-2	FTL 40W	208	0.16%	40W
B-2	CFL 9W (Bulb)	40	0.03%	40W
B-2	HPSV 70W	5	0.00%	40W
Parks	HPSV 250W	71	0.05%	40W
Parks	FTL 40W	17	0.01%	40W
Parks	CFL 9W (Bulb)	8	0.01%	40W
Parks	MV 125W	588	0.44%	40W
Parks	FL 250W	30	0.02%	120W
Parks	HPSV 70W	2	0.00%	40W
HM	FL 250W	158	0.12%	120W
HM	FL 400W	94	0.07%	200W
MM	FL 250W	18	0.01%	120W
Total - A.2		**17911**	**13.35%**	
TOTAL CONVENTIONAL LIGHT A.1 + A.2		**54,410**	**40.55%**	
A.3	**South Zone Existing LED Street Lights**			
1	LED 90W	29702	22.13%	90W
2	LED 24W	2156	1.61%	24W
3	LED 24W PT	2631	1.96%	24W
4	LED 9W (Bulb)	191	0.14%	9W
5	FL LED 150W	2989	2.23%	150W
Total - A.3		**37,669**	**28.07%**	
A.4	**South Zone Procured LED Street Lights**			
1	LED 40W	2241	1.67%	40W
2	LED 90W	10452	7.79%	90W
3	LED 120W	916	0.68%	120W

4	LED 150W	456	0.34%	150W
5	FL LED 150W	2776	2.07%	150W
6	FL LED 200W	385	0.29%	200W
7	FL LED 240W	120	0.09%	240W
Total - A.4		**17,346**	**12.93%**	
A.5	**Bommanahalli Partial Zone Existing LED Street Lights**			
1	LED 90W	4080	3.04%	90W
2	LED 120W	472	0.35%	120W
3	LED 65W	4261	3.18%	65W
4	LED 24W	1547	1.15%	24W
5	LED 9W (Bulb)	7	0.01%	9W
6	FL LED 150W	322	0.24%	150W
7	FL LED 200W	110	0.08%	200W
Total - A.5		**10,799**	**8.05%**	
TOTAL EXISTING LIGHT A.3 + A.4 +A.5		**65,814**	**49.05%**	
A.6	**South Zone Empty Poles Proposed LED Street Lights**			
1	LED	176	0.13%	120W
2	LED	2416	1.80%	90W
3	LED	303	0.23%	65-70W
4	LED	5409	4.03%	40W
5	LED (FL)	216	0.16%	200W
6	LED (FL)	345	0.26%	120W
Total - A.6		**8865**	**6.61%**	
A.7	**Bommanahalli Partial Zone Empty Poles Proposed LED Street Lights**			
1	LED	72	0.05%	120W
2	LED	1248	0.93%	90W
3	LED	218	0.16%	65-70W
4	LED	3475	2.59%	40W
5	LED (FL)	26	0.02%	200W
6	LED (FL)	59	0.04%	120W
Total - A.7		**5099**	**3.80%**	
TOTAL EMPTY POLES A.6 + A.7		**13,964**	**10.41%**	
Grand Total = A.1+A.2+A.3+A.4+A.5+A.6+A.7		**1,34,188**	**100%**	

Executive Engineer
Electrical Division
Bruhath Bengaluru Mahanagara Palike